CALIFORNIA STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR JULY.

Summary.—For July there were reported 2,190 living births; 2,540 deaths, exclusive of stillbirths; and 2,134 marriages. For an estimated State population of 2,001,193, these figures give the following annual rates: Births, 12.9; deaths, 14.9; and marriages, 12.6. The corresponding rates for June were 12.1, 14.2, and 14.9.

The following counties led in the number of marriages: Los Angeles, 444; San Francisco, 387; and Alameda, 302. Next in order were: Santa Clara, 92; Sacramento, 82; Marin, 65; and Orange and San Diego, each 59.

The freeholders' charter cities with the highest number of births were: San Francisco, 417; Los Angeles, 360; and Oakland, 152. Next in order were: Berkeley, 50; San José, 48; Sacramento, 45; Pasadena, 40; Alameda, 38; San Diego, 37; Fresno and Santa Cruz, each 28; and San Bernardino, 25.

The cities with the greatest number of deaths were: San Francisco, 533; Los Angeles, 321; and Oakland, 146. Next in order were: Sacramento, 55; San Diego, 42; Alameda, Pasadena, and San José, each 37; Fresno and Stockton, each 29; and Berkeley and San Bernardino, each 27.

Causes of Death.—There were 380 deaths, or 15.0 per cent of all, from diseases of the circulatory system (heart disease, etc.), and 367, or 14.5 per cent, from tuberculosis of the lungs and other organs. The proportions for heart disease and tuberculosis were each slightly higher for July than for June. In July there were 240 deaths from diseases of the nervous system, 57 being from meningitis, and 184 from diseases of the respiratory system, 111 being from pneumonia and bronchopneumonia. The proportions for these classes of diseases were each somewhat less for July than for June.

Typhoid fever, as usual, was the most fatal epidemic disease in the month, the per cent of total deaths from this disease being 2.1 for July, against 1.5 for June, and 1.1 for May. The deaths from epidemic diseases in July were as follows: Typhoid fever, 54; diphtheria and

croup, 34; whooping-cough, 22; measles, 17; influenza, 8; scarlet fever, 7; and all others, 18.

The following table gives the number of deaths from certain principal causes for July, as well as the proportions from each cause per 1,000 totals deaths for both July and June:

Cause of Death.	Deaths: July.	Proportion per 1,000.	
		July.	June.
ALL CAUSES	2,540	1,000.0	1,000.0
Typhoid fever	54	21.3	15.4
Malarial fever	1	0.4	2.6
Smallpox	2	0.8	....
Measles	17	6.7	10.2
Scarlet fever	7	2.8	5.1
Whooping-cough	22	8.7	9.0
Diphtheria and croup	34	13.4	10.7
Influenza	8	3.2	4.3
Other epidemic diseases	15	5.9	6.4
Tuberculosis of lungs	306	120.5	118.6
Tuberculosis of other organs	61	24.0	21.8
Cancer	135	53.1	54.2
Other general diseases	90	35.4	35.9
Meningitis	57	22.4	23.5
Other diseases of nervous system	183	72.0	80.2
Diseases of circulatory system	380	149.6	149.0
Pneumonia and broncho-pneumonia	143	56.3	70.8
Other diseases of respiratory system	41	16.1	22.6
Diarrhea and enteritis, under 2 years	90	35.4	32.0
Diarrhea and enteritis, 2 years and over	36	14.2	11.5
Other diseases of digestive system	152	59.8	47.4
Bright's disease and nephritis	146	57.5	57.2
Childbirth	21	8.3	10.2
Early infancy	92	36.2	38.0
Suicide	66	26.0	19.2
Other violence	245	96.5	91.3
All other causes	136	53.5	52.9

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases for the several geographic divisions of the State in July:

Geographic Division.	DEATHS: JULY.						
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	All Other Causes
THE STATE	2,540	160	367	240	380	184	1,209
Northern California	347	32	43	37	59	15	161
Coast counties	189	14	20	27	32	8	88
Interior counties	158	18	23	10	27	7	73
Central California	1,480	88	185	124	236	125	722
San Francisco	533	30	50	41	102	64	246
Other bay counties	322	17	45	25	56	29	150
Coast counties	199	16	23	22	28	13	97
Interior counties	426	25	67	36	50	19	229
Southern California	713	40	139	79	85	44	326
Los Angeles	507	33	89	48	63	33	241
Other counties	206	7	50	31	22	11	85

PLAGUE.

Five cases of plague occurred in San Francisco during the first half of August, all of them near the docks. One case was a sailor from the steamer "Samoa," plying between California points. He had spent but thirty minutes on shore for a month, and the vessel being rat-infested, he no doubt received his infection from them. The steamer was ordered into quarantine and thoroughly disinfected and crew retained.

The other cases lived near the docks in cheap, temporary shacks, built after the fire. All infection in them has been destroyed. All coast-wise and deep-water ships will be sulphured for the destruction of vermin, a close watch kept on all deaths that can, in any way, be regarded as suspicious, a destruction of possibly infected goods where cases occur, a thorough disinfection of infected places, and rats destroyed. Although a few more cases may occur, the active steps being taken will, we feel sure, soon stamp out the infection.

PROFESSOR JAFFA.

The appointment of Prof. M. E. Jaffa as Director of the Pure Food Laboratory of the State has been received with unusual approval. It at once gives the department a standing that would take months of hard work to attain with a man less favorably known. The regard which the General Government feels for Professor Jaffa is shown by the Secretary of Agriculture personally asking him to take part in the work which they are now doing to solve the question of sulphuring fruit. In this work Professor Jaffa will be able to aid not only the State, but the Nation, with his thorough knowledge of the subject, and his great ability at arriving at safe conclusions from investigations.

TESTS OF DR. LEININGER'S SOLIDIFIED FORMALDEHYDE.

By Margaret Henderson,
Assistant in the State Hygienic Laboratory.

Dr. George Leininger's Solidified Formaldehyde, according to the pamphlet which sets forth its merits,* is "a pure, concentrated, solidified product which is possessed, when volatilized by the simplest process possible—that of superheating in an open receptacle with the flame of an alcoholic lamp—of the agent's full potencies and properties that render it invaluable for the double purpose of sanitary and thereapeutic adaptation." The series of tests which we applied to it were designed only to test its efficiency as a room disinfectant, under the ordinary conditions of house disinfection.

The solidified formaldehyde is an unctuous paste of about the consistency of mutton tallow, and has a strong smell of formaldehyde. The directions for its use given in the pamphlet are as follows: "Close all doors and windows, and carefully stop all avenues through which the gas may find escape—grates, stovepipe holes, registers, etc., should be tightly sealed; remove vessels containing any quantity of water, to avoid unnecessary absorption of the gas; suspend blankets and other

*Solidified Formaldehyde: Its Sanitary and Therapeutic Employment, with Reports of Bacteriologic tests and therapeutic results.

bedding over chairs to give the formaldehyde gas as free access thereto as possible. * * * When the contents of the room are few and of such character as to present no obstacles to the access of the gas to the germs, less than one half of one ounce will suffice to formalize 1,000 cubic feet of space.''

The test disinfecting was done according to these suggestions under a variety of conditions approximating as nearly as possible the varied conditions met in house disinfection. The test objects were bits of filter paper, about 1 mm. square, sterilized in petri dishes, then inoculated with twenty-four hour bouillon cultures of the organisms used, dried for two hours in the incubator, exposed to the gas in the opened petri dishes, and then at the end of the exposure planted in bouillon. The bouillon was always incubated for forty-eight hours at 37° C.

I started out by using just twice the amount of formaldehyde recommended for ordinary purposes. The results of the experiments with this amount of formaldehyde, one ounce per 1,000 cubic feet, are shown in tables 1, 2, 3 and 4 in detail, and summed in table 5.

TABLE I.

(In an air-tight room.)

Space, 348 cubic feet.
Formaldehyde, 10.8 gr. (1 ounce per 1,000 cubic feet.)
Water, 21.6 cc.
Time for volatilizations of formaldehyde, 28 minutes.
Organisms: B. typhosis; Ps. pyocyanea; M. pyogenes aureus; B. anthracis; B. subtilis.
Time of exposure, 3 hours.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	36	36	0
Under 1 layer of blanket	3	1	2
Under 1 layer of sheet	22	14	8
Totals	61	51	10

TABLE II.

(In an ordinary loosely built room.)

Space, 1,704 cubic feet.
Formaldehyde, 52.5 gr. (1 ounce per 1,000 cubic feet.)
Water, 104 cc.
Time for volatilization, 1 hour.
Organisms used: Same as in Table I.
Time of exposure, 3 hours.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	48	21	27
Under 1 layer of quilt	48	11	37
Under 2 layers of quilt	48	3	45
Under 1 layer of carpet	24	9	15
Totals	168	44	124

TABLE III.

(In a rather tightly built room.)

Space, 979 cubic feet.
Formaldehyde, 30.3 gr. (1 ounce per 1,000 cubic feet.)
Water, 60.0 cc.
Time of volatilization, 20 minutes.
Exposure, 3 hours.
Organisms: B. subtilis; B. typhosis; B. coli; M. pyogenes aureus; Ps. pyocyanea.
Temperature, 25.6° C.
Humidity (at beginning of exposure), 93%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	61	39	22
Under 1 layer of blanket	19	14	5
Under 2 layers of blanket	20	7	13
Under 2 layers of sheet	20	10	10
Under 3 layers of sheet	20	9	11
Under 4 layers of sheet	20	5	15
Totals	160	84	76

TABLE IV.

(In a room of dwelling house.)

Space, 1,041 cubic feet.
Formaldehyde, 32.3 gr. (1 ounce per 1,000 cubic feet.)
Water, 32 cc.
Time for volatilization, 25 minutes.
Organisms: B. subtilis; B. typhosis; B. coli; M. pyogenes aureus; Ps. pyocyanea; B. prodigiosus.
Exposure, 24 hours.
Temperature, 16° C.
Humidity (at beginning), 78%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	17	15	2
Under 1 layer of blanket	18	11	7
Under 2 layers of blanket	17	12	5
Under 3 layers of blanket	15	9	6
Under 4 layers of blanket	18	10	8
Under 2 layers of sheet	16	12	4
Under 4 layers of sheet	16	11	5
Under 6 layers of sheet	17	12	5
Under 8 layers of sheet	15	12	3
Totals	149	104	45

TABLE V.

(1 ounce per 1,000 cubic feet.)

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	162	111	51
Under 1 layer of blanket	88	47	41
Under 2 layers of blanket	83	32	51
Under 3 layers of blanket	15	9	4
Under 4 layers of blanket	18	10	8
Under 2 layers of sheet	58	36	22
Under 3 layers of sheet	20	9	11
Under 4 layers of sheet	36	16	10
Under 6 layers of sheet	17	12	5
Under 8 layers of sheet	15	12	3
Under 1 layer of carpet	24	9	15
Totals	536	303	231

In the test shown in Table I, the room was an air-tight one arranged in the laboratory; in the rest, the rooms were of the ordinary dwelling-house sort, with plastered walls, and ordinarily tight doors and windows. All openings were closed, but the windows and doors were not sealed.

The greatest difficulty arose in knowing when to open the room to take out the generator. In one case it took twenty minutes, and in one case one hour, to volatilize the formaldehyde, instead of the ten

minutes to the ounce given as the usual time in the pamphlet. This slowness in volatilization led to considerable loss in formaldehyde, because the door had to be opened several times during the process to see whether it was yet completed. The danger of fire led to great unwillingness to leave it longer than was entirely necessary.

The results of these four experiments would tend to show that Solidified Formaldehyde is only an indifferent surface disinfectant, sterilizing but 67 per cent of the test objects when used in the proportion of 1 ounce to 1,000 cubic feet, and can not be depended on at all for penetration.

The last experiment was tried with a larger amount of formaldehyde, 2 ounces per 1,000 cubic feet, or four times that recommended by the pamphlet (page 3) for surface disinfection, and the maximum recommended "when unusual permeating potency is demanded, sufficient to kill bacteria protected by several folds of blanket." Table VI gives the results of this experiment:

TABLE VI.

(In a room of dwelling house.)

Space, 778 cubic feet.
Formaldehyde, 48.28 gr. (2 ounces per 1,000 cubic feet.)
Water, 48 cc.
Time of volatilization, 30 minutes.
Exposure, 24 hours.
Organisms: Same as in Table IV.
Temperature, 16° C.
Humidity (at beginning), 78%.

Results.

	Objects Exposed.	Number Sterilized.	Number not Sterilized.
On surface	37	37	0
Under 1 layer of blanket	16	10	6
Under 2 layers of blanket	17	12	5
Under 2 layers of sheet	17	15	2
Under 4 layers of sheet	18	13	5
Under 6 layers of sheet	15	12	3
Under 1 layer of carpet	11	7	4
Totals	131	106	25

All of the thirty-seven test objects exposed on the surface were sterilized, but the penetration was scarcely better than with the other set of experiments, even though the exposure was much longer and the formaldehyde was volatilized quickly.

I would conclude then that, so far as our experiments go, Dr. Leininger's Solidified Formaldehyde seems to be an efficient surface disinfectant when used in the proportion of at least two ounces per 1,000 cubic feet, but can not, at that proportion, be depended on for any penetration. The fire risk in using it is not to be disregarded.

The probability that much of the disinfecting done is not at all effective is clearly shown by the above report. The solid formaldehyde generators, of which the Leininger is a type, are quite generally used throughout the State, and a belief that they were not effective, especially with the amount of material used, led to the series of tests which is reported Health officers will note the fact that the penetrating power is small, and if they continue to use this method, instead of the permanganate of potash method, much larger quantities must be used.

FLY TIME.

Although, owing to our mild climate, which is almost perpetual spring, flies are always with us, during the summer months there are more of them, hence the greater need of care. The fact that flies are one of the greatest causes of the spread of disease can not be too strongly impressed upon both health officers and people. There is nothing too filthy for them to wallow in, and, covered with the dirt and disease germs, they seek human companionship and insist on most intimate associations. They delight to bathe in our milk and scrape their feet on our food, leaving not only the accumulated filth, but other more nasty "spots."

Lighting, as they delight to do, upon open sores on man or beast, and covering themselves with the discharges and the excrement of the sick and then coming to us, is it any wonder that disease spreads? Why should we tolerate the fly? Why not banish him from our towns? Why furnish him a convenient breeding place? We know they breed in manure. Why allow it to be piled up, for no other apparent reason than that the flies can breed? Every city and town should have ordinances requiring all manure to be put in tight receptacles and removed at least every two or three days, and the health department should see that they be enforced. If this could be, a great step would be taken toward preventing the spread of disease.

Professor Woodworth, Entomologist of the State University, is anxious to have some town pass ordinances against flies, and allow him and his body of able assistants to study the situation and help to make a "flyless town." What a popular place it would be!

SICK RABBITS.

The public press gives information that the rabbits of Oregon are dying off with some infectious disease, and that some of them are being taken to Australia with the hope that they will give the disease to their kin in that country, and so relieve it of what has been a veritable pest. The United States Department of Agriculture is also reported as investigating the disease to find out its cause and history.

That the rabbits on the Pacific Coast and in Australia have been a drawback to agriculture there is no doubt, and their riddance would be a blessing, unless it comes at too great a cost. The rabbit is a rodent, and like others of its kind is subject to plague, and while the probabilities are against it, it is possible that this disease is no other. Should it prove to be plague, or some other disease that is fatal to man, the greatest care would have to be exercised or the human family would become infected. For this, as well as purely agricultural reasons, the nature of the trouble should be studied.

While the Department of Agriculture is investigating the cause of death in the rabbits of Oregon, we would call its attention to the fact that the squirrels of California are as much of a damage to agricultural crops as are the rabbits, and that in parts of the State they have died off completely from some disease. Large tracts of country are now free of them which a few years ago were overrun. The gain to farmers has been great, but several cases of plague were traced with great

certainty to the squirrels, so the relief is not an unmixed blessing. While at present the disease is not active, it may flame up at any time, when we shall hope for the same activity on the part of the United States Department of Agriculture in studying the disease as is shown in the disease among the rabbits of Oregon.

RAT-PROOF BASEMENTS.

We would like to suggest to the city government of San Francisco the advisability of passing an ordinance requiring that all business blocks be made rat-proof. It will pay by saving the immense destruction they cause, and we must not forget the danger of the rat as a carrier of disease.

A HINT TO CALIFORNIA MILLIONAIRES.

Senator Redfield Proctor, of Vermont, is reported as spending $100,000 to build, and another $100,000 to endow, a tuberculosis sanatorium in that State.

For the good of mankind, the expenditure of a fortune in teaching how to cure, and better, how to avoid, tuberculosis, is far ahead of endowing an institution where arts and sciences can be learned. Education without health is of little use, and our country is already crowded with institutions for higher education.

With one in every seven dying of consumption, a disease which can be avoided and sometimes cured, there is certainly great need of properly conducted sanatoria where the infected ones can go, both for treatment and for instruction. Senator Proctor deserves, and will doubtless receive, the highest esteem of his State, for in no way could he use his wealth to such good advantage as in combating a disease that is more terrible in its effect than any other with which we have to deal. May the Senator live long to see the good results of his charitable work.